CONCOMITANT *SERRATIA MARCESCENS* PERITONITIS AND TUBO-OVARIAN ABSCESS ASSOCIATED WITH PERITONEAL DIALYSIS AND INTRAUTERINE DEVICE PLACEMENT

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A 38-year-old woman, gravida 2, para 1, was admitted to the nephrology department because of persistent lower abdominal tenderness and the finding of dirty dialysate following peritoneal dialysis. She had undergone peritoneal dialysis for seven years and had experienced peritonitis five times during this period. Cultures of the ascites in previous samplings revealed infection by *Streptococcus* spp. or *Escherichia coli*, or no growth. Two months prior to admission, she underwent the placement of an intrauterine device (IUD). During this admission, ceftazidime 1 g every 24 hours and cefazoline 1 g every 12 hours were parenterally administered. The implanted dialysis catheter (double-cuff straight Tenckhoff) was removed on the third day of admission because of peritonitis. Cultures of the ascites revealed *Serratia marcescens*, and the treatment was thus changed to cefotaxime 2 g every 24 hours, which *Serratia marcescens* is sensitive to. Abdominal computed tomography on the 11th day of admission revealed bilateral tubo-ovarian abscess (TOA) around the adnexal portion and an IUD inside the uterus (Figure 1). Transvaginal sonography confirmed bilateral TOA (Figure 2). The IUD was removed subsequently. On the 31st day of admission, the treatment was changed to imipenem 250 mg every 12 hours, which *Serratia marcescens* is more sensitive to. Resolution of TOA occurred on the 39th day of admission. The patient was doing well and was discharged on the 41st day of admission.

Figure 1. Abdominal computed tomography reveals formation of abscess (arrow) and the intrauterine device inside the uterus (arrowhead).

The present case is the first known report of concomitant *Serratia marcescens* peritonitis and TOA associated with peritoneal dialysis and IUD placement. Interestingly, the present case was associated with resolution of TOA following medical treatment with carbapenem which is specific for *Serratia marcescens*. Placement of an IUD has been well known to be a predisposing factor for TOA, which is usually caused by pathogens such as *Actinomycosis, Escherichia coli, Bacteroides* spp., and *Streptococcus* spp. [1–3]. We initially treated TOA in this patient with third-generation cephalosporin, such as ceftazidime and cefotaxime, but without any effect. Penicillin has been considered as the drug of choice for pelvic *Actinomycosis*, and third-generation cephalosporin is effective for most pathogens associated with TOA caused by IUD placement [4]. We, therefore, speculate that the pathogen responsible for TOA in this patient was not likely the common one associated with TOA.

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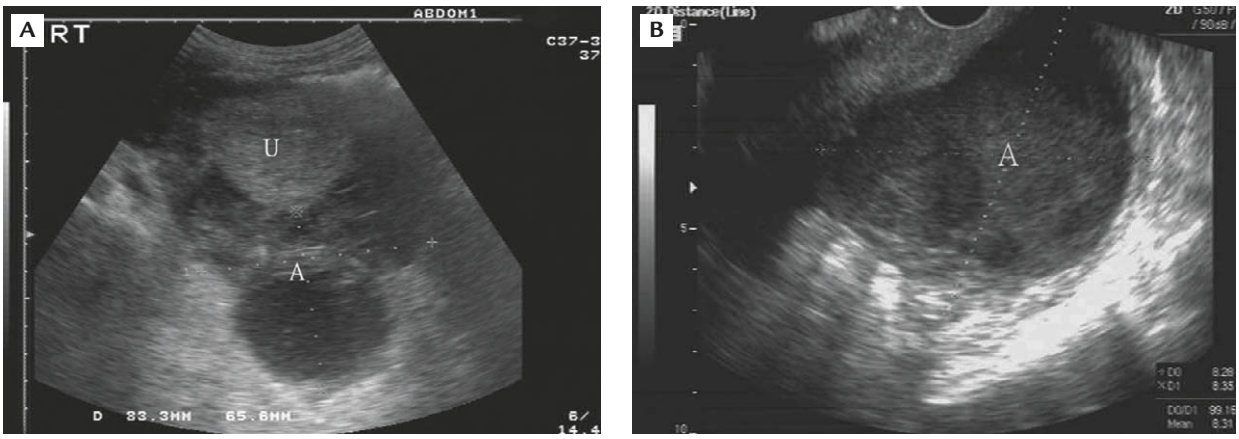

Figure 2. (A) Transabdominal ultrasonography shows right adnexal abscess (8.3 × 6.5 cm). (B) Transvaginal ultrasonography shows left adnexal abscess (8.3 × 8.29 cm). A = abscess; U = uterus.

In the present case, the peritonitis was caused by *Serratia marcescens*. Bacterial peritonitis is not unusual in cases with peritoneal dialysis. The reported pathogens include Gram-positive pathogens, such as coagulase-negative staphylococci, *Staphylococcus aureus*, α-hemolytic streptococci, *Enterococcus* and diphtheroids, and Gram-negative pathogens, such as *Escherichia coli, Pseudomonas aeruginosa, Enterobacter* spp., *Klebsiella oxytoca, Acinetobacter* spp. and *Serratia marcescens* [5]. The peritonitis rate has decreased currently; however, it still remains an important cause of technique failure of peritoneal dialysis. Krishnan et al [5] proposed that bacterial peritonitis in peritoneal dialysis caused by Gram-positive organisms has a more favorable outcome than those caused by Gram-negative or polymicrobial organisms, and the peritonitis associated with *Serratia marcescens* has the worst outcome.

Since IUD placement and peritoneal dialysis are predisposing factors for peritonitis, we suggest that placement of an IUD in a woman on peritoneal dialysis should alert one to the possibility of both peritonitis and TOA. We also suggest that female patients on peritoneal dialysis should consider other contraceptive methods rather than IUD placement.

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